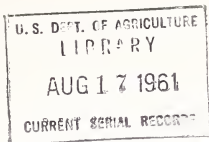


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Highlights and Trends of the Frozen Food Locker and Freezer Provisioning Industry

by
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Farmer Cooperative Service
U.S. Department of Agriculture

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

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The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies, confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

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Highlights

Changing economic conditions confront management of frozen food locker and freezer provisioning firms with difficult problems of adjustment. Management needs to know the direction and extent of economic changes to intelligently deal with these problems. With this knowledge it can plan programs of action. Without such knowledge, it is handicapped.

This study, made at the request of the industry, provides current information on industry trends and changes that management needs to effectively adjust operations to changing economic conditions. Some of the more important trends and changes are:

1. Industry sales in 1959 were \$845 million. Meat, poultry, and commercial frozen food amounted to \$550 million in 1959 -- more than double the sales volume of 5 years earlier. In addition to food sales, the industry sold \$160 million worth of homefreezers, \$118 million worth of custom services, and \$17 million worth of miscellaneous products and services.

2. Number of patrons served increased from 5 million in 1954 to 6.4 million in 1959 -- a 28 percent increase. During this period the number of locker patrons declined but the decline was more than offset by the increased number of homefreezer patrons. In 1959 nearly one out of every seven families in the United States was served by the industry.

3. Meat and poultry processing increased 200 million pounds from 1954 to 1959. The industry total for 1959 was 1.8 billion pounds.

4. Total net zero space in lockers and homefreezers increased almost 48 percent from 1955 to 1960. The increase in zero storage space in homefreezers offset a loss in locker space resulting from a decline in number of firms renting lockers.

5. Nearly 1 out of 10 firms in this industry now provide no locker rental service. Serving homefreezer owners is the major activity of these firms.

6. Firms continue to add new and expand old processing and merchandising services.

Findings of this study suggest that the future growth of the locker and freezer provisioning industry lies in processing and merchandising rather than in renting lockers. The growth will probably come from increased selling in bulk quantities to homefreezer patrons and wholesaling to restaurants, institutions, and other such outlets.

Opportunities for continued growth are related to a rapidly expanding population, higher standard of living, a growing demand for convenience, and expanded use of homefreezers.

Highlights and Trends of the Frozen Food Locker and Freezer Provisioning Industry — 1960

by P. C. Wilkins, L. B. Mann,
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Substantial changes have occurred in the frozen food locker and freezer provisioning industry during the past several years. This study was undertaken to appraise the direction and extent of these changes.

The study provides managers and directors with current information on industry trends as an aid in planning and decision making. It also provides basic information on changes in the size and scope of the industry for use by State and Federal agencies, frozen food packers and distributors, homefreezer manufacturers, the industry's trade association, and others.

Farmer Cooperative Service began this work upon request of the National

Institute of Locker and Freezer Provisioners and approval of the Refrigerated and Frozen Products Research Advisory Committee. The latter committee rated the project first priority out of seven projects in a specified category.

Information was obtained by mail questionnaire from approximately 4,500 firms among which were 240 cooperatives. This report deals only with national trends and changes. It will be followed by a more comprehensive report which will emphasize regional developments.

The contents of this report are divided into seven major sections and presented as follows: Growth of the industry sets the stage by showing the beginning and progress of the industry over the past half century. Information on storage capacity and use brings out the amount of space available in frozen food lockers and homefreezers to store frozen foods. Two additional measures of the size of this industry are sales and processing volume.

Next comes a discussion of the diversity of operations performed within the industry. This is followed by a section on rental and processing rates. Finally there is a discussion of opportunities for growth and improvement.

Note: Appreciation is expressed to the operators who returned questionnaires and thus made this study possible. The authors acknowledge the assistance of Robert Madeira, Executive Director of the National Institute of Locker and Freezer Provisioners, and of Albert Todoroff, Editor of Freezer Provisioning Magazine, in providing information on plant locations, in soliciting the cooperation of operators, and in furnishing the photographs.

Growth of the Industry

Growth of the locker and freezer provisioning industry covers more than half a century. Salient features of this growth in terms of number of firms, location, homefreezers, patronage, and employment will be useful to management in appraising business opportunities and in evaluating their operations in terms of these opportunities.

Number of Plants

Long before Clarence Birdseye built his first commercial freezing plant in Massachusetts in 1926, farmers on the Pacific Coast were storing meat and other perishable food in refrigerated locker space. Chico Ice and Cold Storage at Chico, Calif., offered the first locker

rental service on record in 1908. Creameries started other early locker plants at Crete, Nebr., in 1910 and Centralia, Wash., in 1917.

By 1938, more than 1,200 locker plants were operating, mostly in the Midwest and Pacific Coast. During the next 3 years the number of firms tripled.

Growth slowed during the years of World War II, then gained momentum again. The industry reached a peak of 11,600 plants in early 1951. Since then it has been going through a readjustment period which has resulted in the closing of some 2,600 plants. By January 1, 1960, the number of locker plants had declined to 8,965 (figure 1).

Figure 1

Locker and Freezer Provisioning Firms in the U. S., 1938-1960

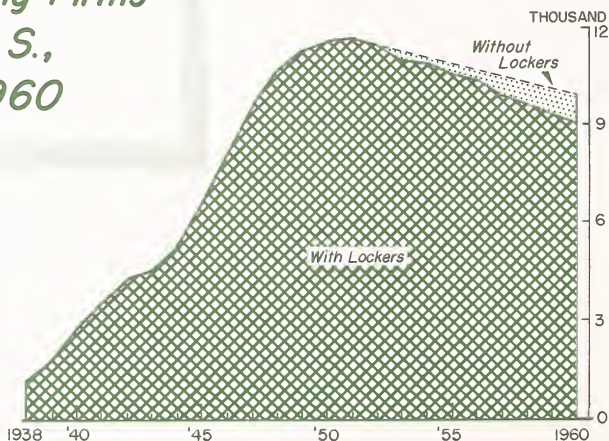
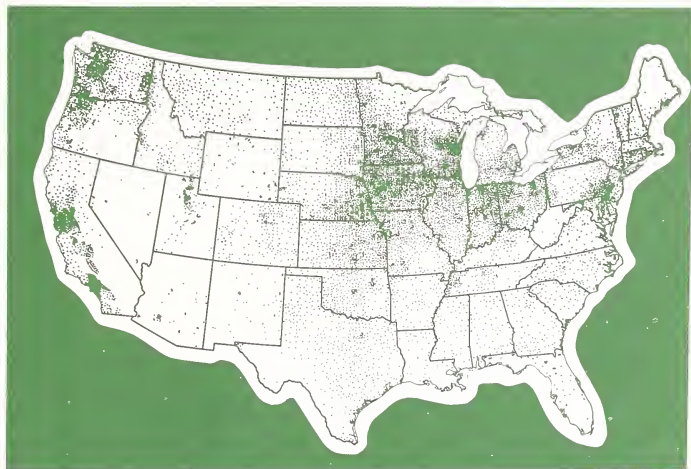


Figure 2

Locker and Freezer Provisioning Firms 1960



In this same period, a new type of business developed -- freezer provisioning or food plans. These new firms provide no locker rental service. Their major activity is catering to the needs of homefreezer owners. Over 900 of these firms were operating in January 1960.

Location

In January 1960, locker and freezer provisioning organizations were operating in every State.¹ The heaviest concentration was in the North Central Region and the lightest in the South Atlantic Region (figure 2).

Table 1 gives a more specific distribution of firms by regions. It shows over half the firms were located in the North Central Region and about one out of six in the Pacific Region. The decline in number

Table 1. - Frozen food locker and freezer provisioning firms by regions, January 1960

Region	Number
North Atlantic	691
North Central	5,228
South Atlantic	421
South Central	1,078
Mountain	853
Pacific	1,604
United States	9,875

Note: This count is based on information supplied by State Departments of Agriculture, State Extension Services, the National Institute of Locker and Freezer Provisioners, and State locker associations.

of firms since 1955 has occurred primarily in the North Central and South Central Regions, while the smallest decline occurred in the Pacific Region.

As in previous years, locker and freezer provisioning firms were located mostly in small towns. Over half were located in towns of 2,000 or less population and two-thirds were in towns of 5,000

¹This included the States of Alaska and Hawaii. However, the freezer provisioning organizations in these two States were not included in this study.

or less population. At the other end of the scale, 14 percent of the firms were in cities of 25,000 or more population.

Compared with data accumulated in 1955, these 1960 data show a decline in the proportion of firms located in towns of 2,000 or less population and an increase in the percentage located in cities of 25,000 or more.

Locker plants performing custom processing and rental services only are losing

out, while firms performing expanded processing and merchandising services to locker renters, homefreezer users, institutions, and others are increasing their volume of business. Firms in larger towns showed the greatest gain in business volume.

Homefreezers

The rapidly growing use of homefreezers is changing the buying and eating

Figure 3

HOME FREEZERS

CAPACITY

161 Million cu. ft.

4.8 Billion lbs.

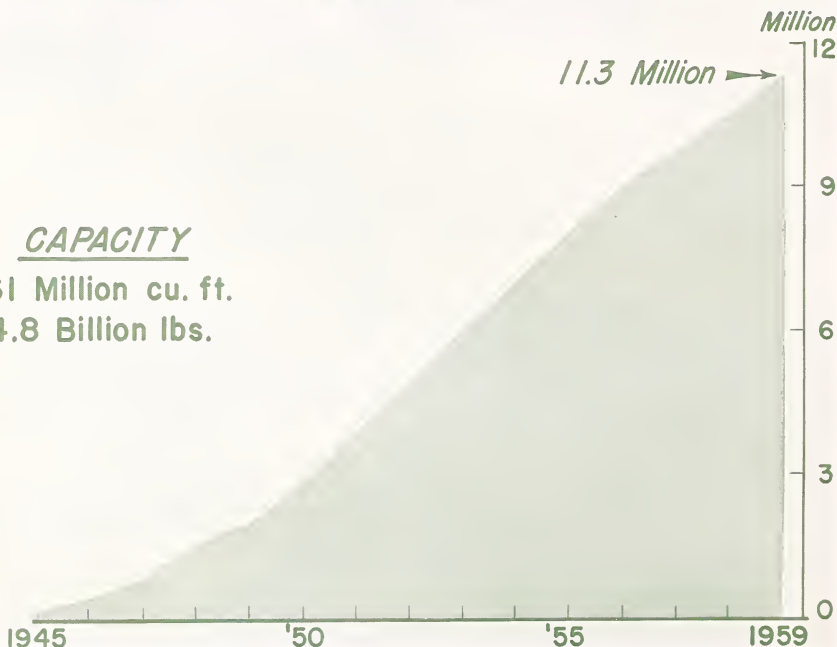
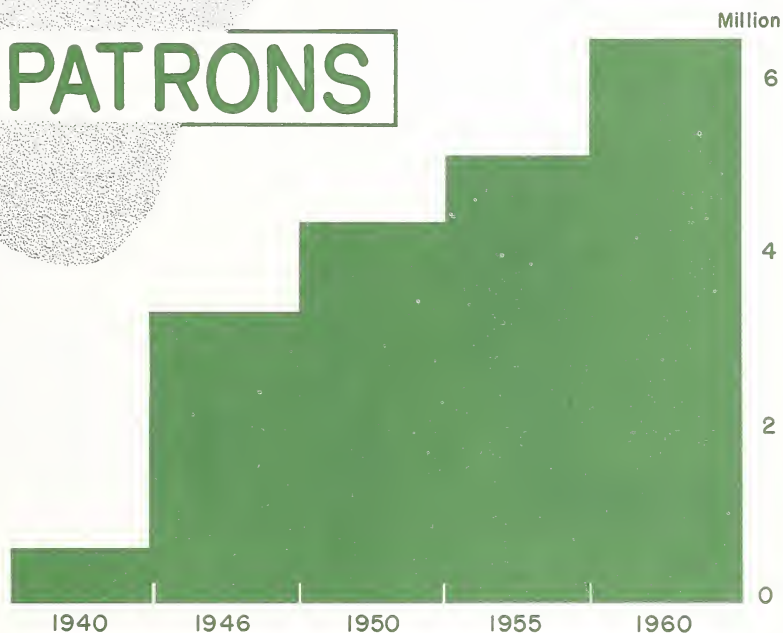


Figure 4

PATRONS



habits of millions of consumers. This method of purchasing and storing frozen foods in bulk quantities promises to exert an even greater influence in the future as the use of homefreezers becomes more widespread.

More than 11 million families, or 1 out of 4 in this country, were using homefreezers to store all or part of their perishable food supply by the end of 1959 (figure 3).

Practically all the growth in numbers of homefreezers in use has come since the end of World War II. From about 500,000 in 1946, the number climbed to 11.3 million in 1959. In recent years the number of homefreezers has increased by approximately 1 million a year.

Capacity of these homefreezers is estimated at 161 million cubic feet. This space will hold about 4.8 billion pounds of frozen food at one time.

Figure 5



Patronage

The number of people served by the locker and freezer provisioning industry continued to increase (figure 4).

From about 580,000 patrons in 1940, the number increased to 6.4 million in 1959. This means that nearly 1 out of every 7 families in the 48 States was served by this industry. In the past decade patronage in this industry has been characterized by declining numbers of locker renters and greatly increasing numbers of homefreezer patrons. During this period

the total number of patrons increased by 2 million or about 50 percent.

Employment

Total employment in the locker and freezer provisioning industry at the beginning of 1960 was estimated at 47,000 (figure 5). Evidence indicates that employment grows as processing volume increases and more firms expand into freezer provisioning and institutional selling. The employment of local labor to process and merchandise locally produced foods is advantageous to both local producers and the community.

Storage Capacity and Use

A trend management needs to consider is the growing importance of zero storage space in the home. In the mid-1940's almost all zero storage space available to consumers was in frozen food lockers. The growth in numbers of homefreezers made additional zero space available in the homes of millions of consumers. This tends to reduce demand for lockers, increase the number of potential customers, and require new techniques in merchandising.

Net Zero Storage

Estimated net zero storage space in lockers and homefreezers increased almost 48 percent from 1955 to 1960 (figure 6).

The proportion of the space divided between lockers and homefreezers also changed significantly. In 1955 lockers accounted for 40 percent of the net zero space and homefreezers, 60 percent. In

Figure 6

NET ZERO STORAGE SPACE AND CAPACITY (On Locker and Freezer Provisioning Plants and Home Freezers)

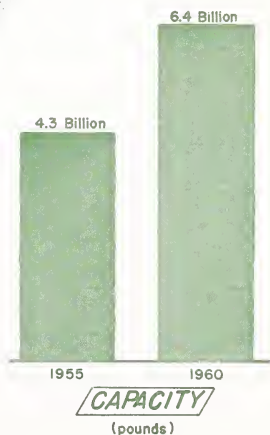
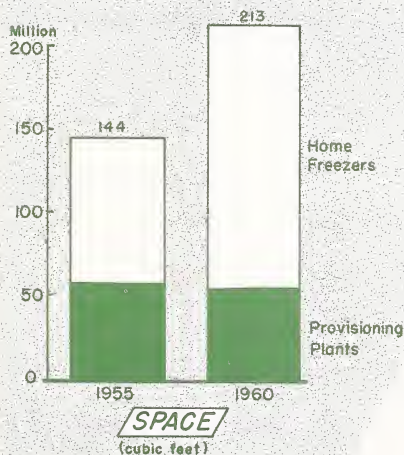
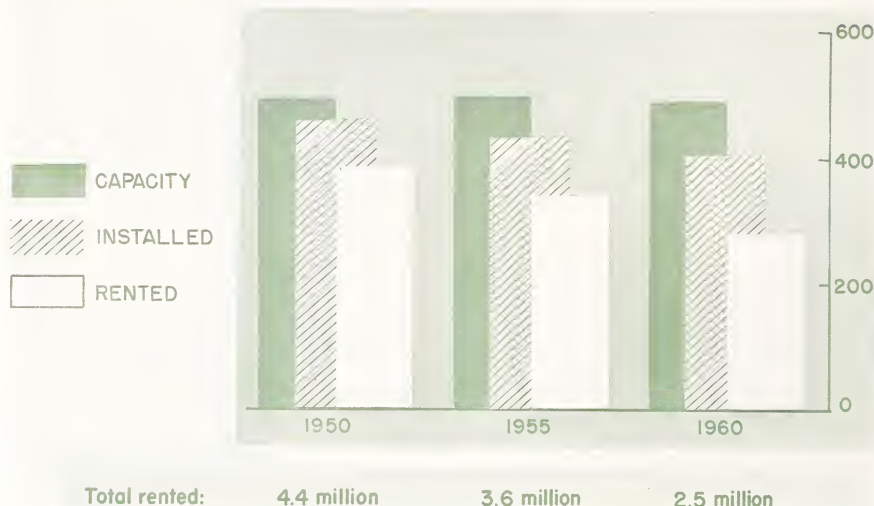


Figure 7

LOCKERS

Avg. capacity, installed, & rented



1960, the proportion accounted for by lockers slipped to 25 percent while that in homefreezers jumped to 75 percent.

The combined zero storage space of lockers and homefreezers in January 1960 was capable of holding 6.4 billion pounds of frozen foods at one time. This capacity could almost hold the entire United States output of commercial frozen food in 1959.

Locker Capacity, Installed, and Rented

The average capacity of frozen food locker plants in terms of lockers changed very little between 1950 and 1960. The average number of lockers installed, however, dropped 12 percent. The average number rented tumbled even further -- from 389 in 1950 to 279 in 1960, a 43 percent decline (figure 7).

For the entire industry this represented a decline in lockers rented from

4.4 million in 1950 to 2.5 million in 1960.

Sales of Products and Services

An indication of the vigor of this industry is its growing dollar volume of business. A decade ago the typical frozen food locker firm derived nearly all its revenue from custom storage and processing. Many thousands of these firms had an annual gross revenue considerably less than \$20,000. Today the average firm operates a growing merchandising program, handles many times the dollar volume of business of earlier locker firms, and as a result is faced with new problems such as developing effective sales programs, financing inventories, and providing consumer credit.

Industry Sales

Total industry sales for 1959 amounted to approximately \$845 million. Of this total, sales of meat, poultry, and commercial frozen foods were estimated at over \$550 million, double the \$275 million sales for 1954 (figure 8).

Homefreezers, custom services, and miscellaneous revenue accounted for the remaining sales dollars. Homefreezer sales amounted to \$160 million, custom services \$118 million, and miscellaneous \$17 million. No comparable data were

Figure 8

1959
INDUSTRY
SALES

Total Sales - \$845,000,000

Average Firm Sales - \$85,500

<u>No. Firms</u>	<u>Sales (dollars)</u>
4,100 —	Under 25,000
2,000 —	25,000 - 49,999
1,700 —	50,000 - 99,999
1,100 —	100,000 - 199,999
700 —	200,000 - 499,999
300 —	500,000 and Over



This Frozen Food Center provides locker rental, custom processing, and freezer provisioning service to both farmers and urban patrons.



More and more busy homemakers are discovering the convenience and economy of having a homefreezer in their kitchen.

A customer's order of frozen food is being assembled for delivery to her homefreezer.

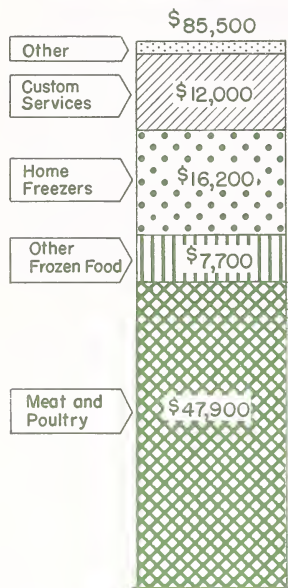


Local frozen food processing plants are equipped to supply frozen meat and other foods in quantity lots to homefreezer and locker users. Pictured below is a processing room in a modern freezer provisioning plant.

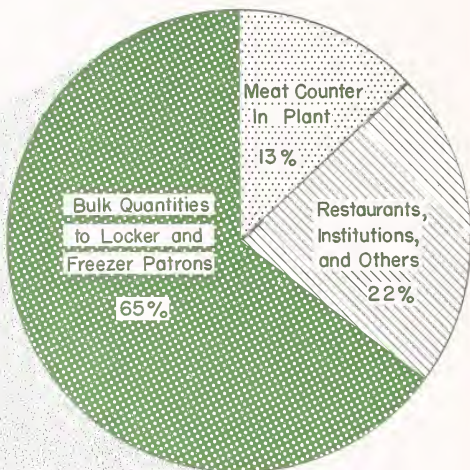


Figure 9

AVERAGE FIRM SALES



OUTLETS FOR MEAT



available for these three sales categories from prior years.

Average Firm Sales

Average sales per firm were estimated at \$85,500 for 1959. About 40 percent of the firms had annual sales under \$25,000; 40 percent from \$25,000 to \$99,999; and 20 percent \$100,000 or more.

Fifty-six percent of the average firm's sales consisted of meat and poultry, 9

percent other frozen foods, 19 percent homefreezers, 14 percent custom services, and 2 percent packaging materials, membership fees, and other miscellaneous items (figure 9).

Sixty-five percent of the average firm's meat and poultry sales were made in bulk quantities to locker and homefreezer users. Thirteen percent represented sales from a retail meat counter in the plant, and 22 percent consisted of sales to restaurants, institutions, and other wholesale outlets.

Processing Volume

The degree of efficiency a freezer provisioner achieves in his operation is closely related to the volume of products he processes and handles. To gain optimum efficiency and reduce unit costs, managers need to know the capacity of their plant and equipment and then strive

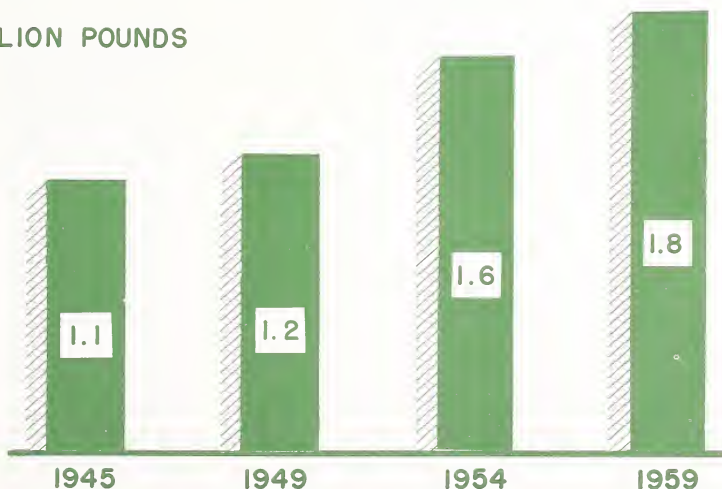
to attain optimum volume consistent with this capacity.

Optimum processing capacity of the industry is not known. Information is available, however, on the volume of products processed during certain years.

Figure 10

MEAT PROCESSED

BILLION POUNDS



This information pertains to cutting, wrapping, and freezing meat and poultry, slaughtering livestock, dressing poultry, and curing.

Meat and Poultry

Total volume of meat and poultry processed has increased steadily. From 1945 to 1959 volume increased 64 percent (figure 10).

Much of this increase came from expanded processing for homefreezer patrons.

trons as well as sales to restaurants, institutions, and other outlets. Approximately 80 percent of the 1.8 billion pounds processed in 1959 was for locker and homefreezer patrons. The remaining 20 percent was sold over retail counters in the plants or to wholesale accounts (figure 11).

The average volume of meat and poultry processed per firm increased from 168,000 pounds in 1954 to 203,000 pounds in 1959, a gain of 21 percent.

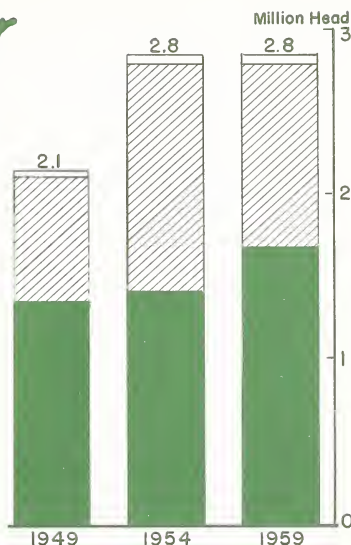
Figure 11



Figure 12

Livestock Slaughter

	1949	1954	1959
No. firms	3,100	3,400	3,550
Avg. per firm:			
Sheep and lambs	12	16	18
Cattle and calves	238	407	313
Hogs	433	402	470
Total	683	825	801



Livestock Slaughter

Total volume of livestock slaughtered in 1959 was estimated at 2.8 million head, the same as in 1954, but 700,000 more than in 1949 (figure 12).

Slaughter volume was equally divided between cattle and hogs in 1954 -- 1.4 million head each. In 1959 the proportions changed significantly. Hog volume increased to 1.7 million head while cattle volume declined to 1.1 million. The decline in cattle volume and increase in hog volume, compared with 5 years ago, likely were because of the relationship between cattle and hog prices in the two periods.

Cattle prices were much lower than hog prices in 1954 so farmers slaughtered more cattle for home consumption. In 1959 cattle prices had recovered and hog prices were down. Therefore, farmers slaughtered more hogs and sold their cattle.

Dress Poultry

The trend in poultry dressing volume was downward in the locker and freezer provisioning industry. From approximately 8.8 million head dressed in 1954 the volume dropped to 5.1 million head in 1959. Two reasons help explain this: (1) Volume of custom poultry dressing was falling because more farmers were

Figure 13

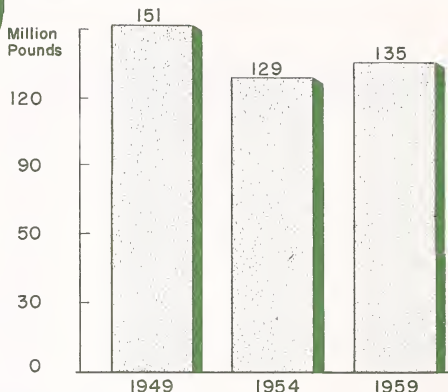
CURING

Firms curing

1949 - 6,520 - 57%
1954 - 5,560 - 53%
1959 - 4,650 - 47%

Average per firm

1949 - 23,200 lbs.
1954 - 23,200 lbs.
1959 - 29,100 lbs.



discontinuing their farm flocks, and (2) fewer freezer provisioners were dressing poultry for sale because they could not compete with specialized poultry processors.

Average number of head of poultry dressed in plants operating poultry dressing facilities in 1954 and 1959 were 4,200 and 3,400, respectively.

Curing

The volume of pork cured in 1959 by locker and freezer provisioners amounted to 135 million pounds. This was a 5 per-

cent increase over 1954 but still 11 percent less than the high reached in 1949 (figure 13).

Average volume of pork cured per plant showed a marked increase from 1954 to 1959. This was because of both an increase in total pork cured and a decrease in number of firms curing.

While most of the pork was custom cured for locker and homefreezer patrons, an increasing percentage was produced for sale. This latter point applied especially to firms in the South Atlantic Region.

Processing and Merchandising Operations

Management in the locker and freezer provisioning industry continually adjusts operations to meet changing conditions. New processing and merchandising services are added to capitalize on new opportunities. Existing services are frequently expanded and sometimes reduced or eliminated as demand changes. Those responsible for making decisions benefit from the knowledge of major processing and merchandising trends in the industry. This section gives operators a quick picture of the trends and extent of the processing and merchandising operations functioning within the industry.

Processing

Figures 14 and 15 graphically show the percentage of firms in the locker and freezer provisioning industry that engage in the specified processing activities.

Livestock Slaughter - Custom. - The trend in percentage of firms slaughtering livestock is steadily upward.

Curing - Custom. - The trend in percentage of firms curing pork is markedly downward.

Figure 14

Processing Services

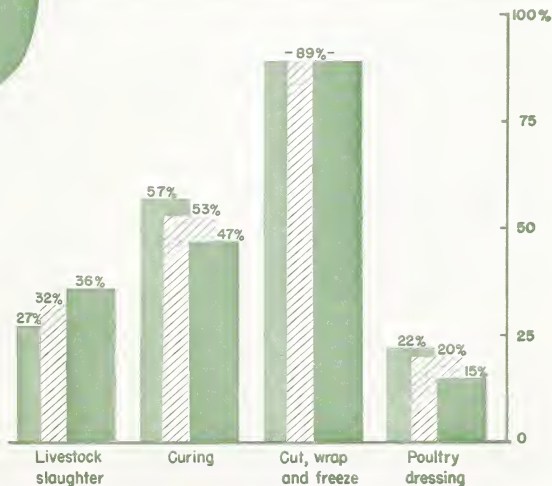
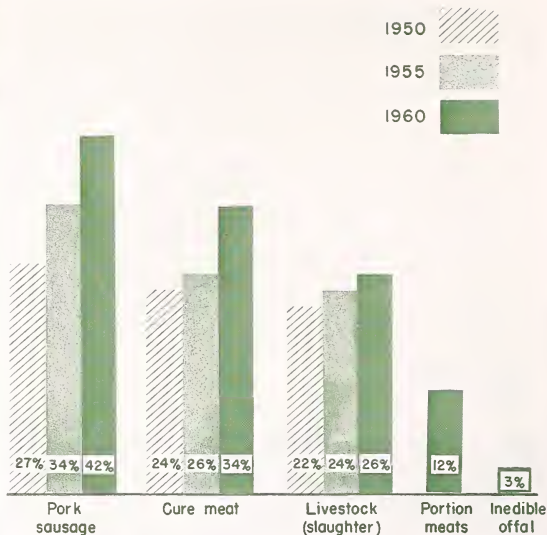
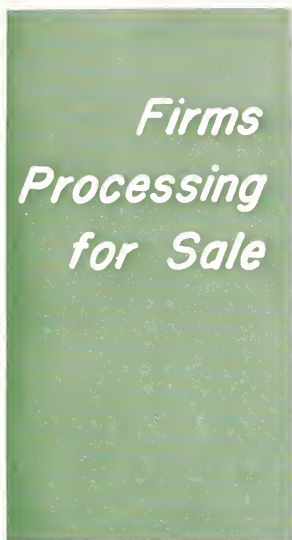


Figure 15



Cut, Wrap, and Freeze. - The percentage of firms cutting, wrapping, and freezing meat has remained unchanged at a high level.

Poultry Dressing. - Percentage of firms dressing poultry is trending downward.

Pork Sausage. - The percentage of firms producing pork sausage for sale is trending steeply upward.

Cure Meat for Sale. - The trend in percentage of firms curing meat for sale is sharply upward.

Slaughter Livestock for Sale. - Percentage of firms slaughtering livestock for sale shows a gradual upward trend.

Portion-Control Meats. - Firms in the locker and freezer provisioning industry have only recently begun producing portion-control meats (individual meat servings of equal weight). Therefore, it is significant that 12 percent were doing it in January 1960.

Inedible Offal. - In January 1960, only 3 percent of the establishments in the industry processed inedible offal. The percentage would have been about three times greater if it were calculated only for the firms operating livestock slaughtering facilities.

Merchandising

Figures 16 and 17 give a pictorial view of the percentage of locker and

freezer provisioning establishments that employ indicated merchandising activities. Most of these are only highlighted since sufficient information is not available to show trends.

Wholesale Packer Meat. - In January 1960 over half the firms in the industry bought packer slaughtered meat for resale in wholesale cuts. The percentage was unchanged from 1955 to 1960.

Commercial Frozen Food. - Fifty-one percent of the industry bought and resold frozen foods packed by commercial packers. This was a 3 percent decline from 1955 but even with 1950.

Meat Net-Weight. - In January 1960, 23 percent of the industry sold meat on a net-weight basis.

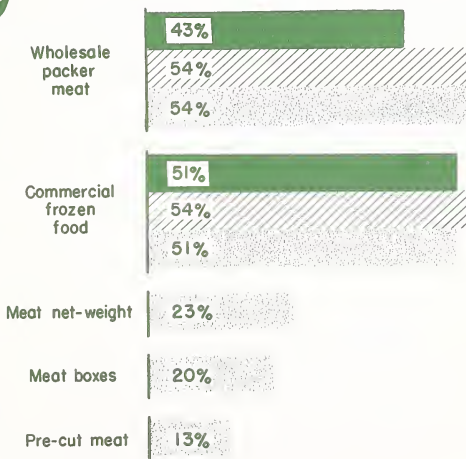
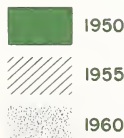
Meat Boxes. - One-fifth of the industry sold frozen meat in prepacked meat boxes or bundles in January 1960.

Pre-Cut Meat. - Some firms maintain an inventory of various retail cuts of meat to fill orders rather than cut meat especially to fill each individual order. In January 1960, 13 percent of the firms in the industry maintained such an inventory.

Food Plan. - Food plan is used here to mean those firms that finance or arrange

Figure 16

Merchandising Operations



financing for 60 days or more for bulk food purchases by patrons. The substantial increase in firms operating a food plan in January 1960 over 1955 signified the importance of credit to the locker and freezer provisioning industry -- 16 to 31 percent.

Figure 18 also presents information on food financing. Among the 2,800 firms financing food in January 1960, the portion of food sales financed varied. About one-third financed 60 to 100 percent of their food sales. One-third financed 20 to 59 percent, and one-third financed less than 20 percent.

Delivery Service. - In January 1960, one-fourth of the industry offered home

delivery service to their patrons for food purchases.

Homefreezers. - The percentage of firms selling homefreezers has trended slightly downward since 1950. In January 1960, 14 percent of the industry sold homefreezers.

Staples. - Ten percent of the industry handled staples in conjunction with their freezer provisioning programs in January 1960.

Membership Fees. - Some freezer provisioners restrict the services of their organization to members. Then they provide two ways for people to gain membership. First, a person becomes a member

Figure 17

Freezer Provisioning Services

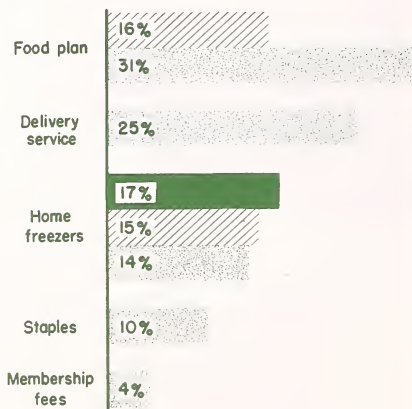
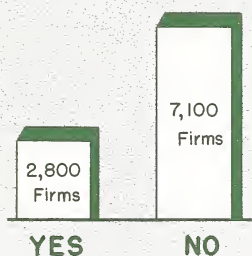


Figure 18

Firms Financing Food 1960



*Portion of food sales
financed by these
2,800 firms*

<i>Firms</i>	<i>% Financed</i>
900 -	Under 20%
600 -	20-39%
400 -	40-59%
300 -	60-79%
600 -	80-100%

of the freezer provisioning program through purchase of the organization's homefreezer and complementing services. Second, a person who already owns a homefreezer may gain membership in the freezer provisioning program by paying a membership fee. Members are

entitled to all the benefits and services of the program.

In January 1960, 4 percent of the industry charged a fee for persons to gain membership in their freezer provisioning programs.

Rental and Processing Rates

Revenue from locker rentals and custom processing still provided a substantial part of total revenue for many locker plants. Rental rates for lockers were usually on an annual basis although short

term rentals were growing in importance. Custom rates for processing meat, curing pork, and rendering lard were generally on a pound basis; and on a per head basis for slaughtering livestock and dressing

poultry. Two major rates - locker rental rates and beef processing rates - are discussed in this section.

Locker Rentals

Annual rates for renting lockers have increased only slightly over the past 15 years (figure 19). They rose only \$2.01 and then almost 80 percent of the rise occurred between 1946 and 1950.

Rates varied widely among regions. The South Atlantic Region had the highest average rate and the Pacific Region the lowest.

Figure 19



Cut, Wrap, Freeze, and Grind Beef

The trend in the rate for cutting, wrapping, freezing, and grinding a 100 pounds of beef has been steadily upward from 1946 to 1960 (figure 20). The rate has risen about 1 cent a pound for each 5-year period or a total of 117 percent since 1946. This percentage increase is approximately the same as the percentage rise in average hourly wage rates for production workers in the food trade. This is shown at the bottom of this same figure.

LOCKER RENTAL RATES

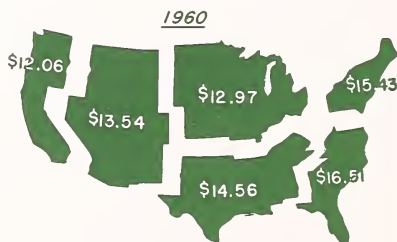
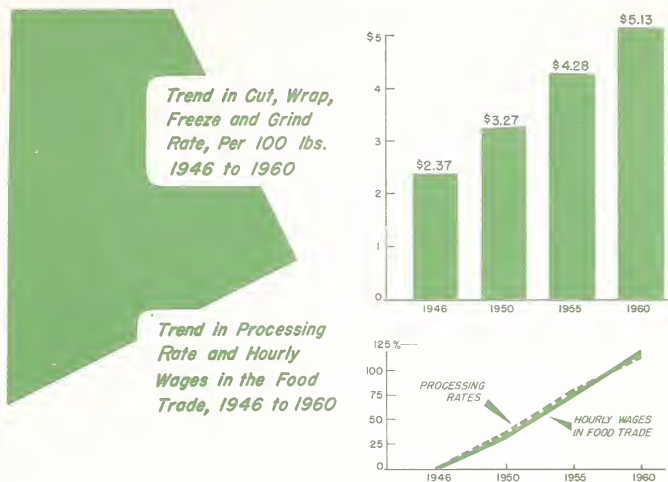


Figure 20



Opportunities for Growth and Improvement

Basic information on trends since 1950 and on the present status of the industry should help management make adjustments that will result in growth and in more efficient services to both producers and consumers.

The downward trend in number of plants depending upon locker rentals and custom processing will probably continue. Future growth of the industry will be in processing and merchandising food in bulk quantities at retail to homefreezer users and wholesaling to restaurants, institutions, and similar organizations. Opportunities for continued growth center on a rapidly expanding population, higher standards of living, expanded use of home-freezers, and increasing numbers of employed women who demand the convenience of prepared frozen foods and special related services such as credit and delivery.

Opportunities for improving efficiency are present in the industry. Slaughtering, processing, and merchandising locally produced meat, poultry, and other foods by local plants can cut transportation, handling, and labor costs. This should reduce the price spread between producers and consumers. Locker and freezer provisioning operators can capitalize on these opportunities, if they will provide quality products and services, operate efficiently, and continue to adjust their operations to meet changing competitive conditions.

To capitalize on these opportunities locker and freezer provisioners need basic information relating to trends in the industry, need to carry on and apply research findings, need to strengthen management methods, and to adjust and expand services and activities to meet changing economic situations.

Other Publications Available

Business Management of Frozen Food Locker and Related Plants, Marketing Research Report 258, James J. Mullen and Lloyd M. DeBoer.

Guide to Uniform Accounting for Locker and Freezer Provisioners, Agricultural Handbook 163, Thornton W. Snead, Sr., and Paul C. Wilkins.

Merchandising Frozen Food by Locker and Freezer Provisioning Plants, Marketing Research Report 313, Bert D. Miner.

Merchandising Practices for Freezer Provisioners, Marketing Research Report 453, Bert D. Miner.

Producing and Merchandising Sausage in Small Plants, FCS Circular 5, C. G. Randell.

Inedible Offal as a Hog Feed - Processing and Feeding by Small Slaughterers, FCS General Report 37, B. D. Miner.

Frozen Food Locker and Freezer Provisioning Firms in the United States, Twenty-Third Annual Count, January 1960, FCS General Report 87, L. B. Mann.

Operating Costs of Selected Frozen Food Locker Cooperatives, FCA Bulletin 71, Paul C. Wilkins and L. B. Mann.

Management Accounting for Frozen Food Lockers, Freezer Provisioners, and Local Processors, Marketing Research Report, Robert L. Dickens.

A copy of these publications may be obtained upon request while a supply is available from --

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